PSI Discussion Papers

Policy Studies Institute

PSI Discussion Paper (new series); 2

Work Orientations of Older Employees: Change over the 90s and into the 00s

Michael White

PSI Discussion Papers

ISBN: 978 085374 834 2
PSI Report No: 908

Policy Studies Institute
For further information contact:
Publications Dept., PSI, 50 Hanson Street, London W1W 6UP
Tel: (020) 7911 7500 Fax: (020) 7911 7501

PSI is a wholly owned subsidiary of the University of Westminster

psi
Policy Studies Institute

Abstract

Older employees are usually assumed to be especially "loyal" to their employers, but there has been little research to establish whether such attitudes have been changing. This paper first conceptualizes the traditional position of older employees in terms of incentive contracts and employment rents, and then uses knowledge about recent change in the labour market to suggest that this position will have been deteriorating relative to younger employees. This prediction is tested using data from national surveys of employees, with the main comparisons over the period 1992-2000 and supplementary comparisons, to test robustness, for 1998-2004. The results support the prediction that older employees have become relatively disenchanted with their situation, and show that their negative feelings are aimed at their own employers rather than the general employment situation.

1 Introduction

Age is a variable that is routinely included in most investigations of employees. Yet it is rarely the focus of attention, more usually being no more than an unremarked control.[1] There are reasons why this should change. Most important is the increased longevity already witnessed, and predicted to advance further, throughout the advanced economies. This brings with it a rising pension and old-age welfare burden if the established behaviours, policies and institutions should continue (Esping-Andersen 1996). As recently as the 1980s, many governments were encouraging early retirement to offset unemployment, but now they are generally trying to foster higher participation in paid employment among older workers, and are seeking ways of delaying the statutory age of retirement. Age has meanwhile joined gender and ethnicity as a forbidden form of discrimination. Yet for all this the evidence base for older worker policy has so far remained slight; this includes knowledge about the attitudes and motivations of older workers toward their employers and their employment.[2]

The value of knowledge about attitudes lies in their potential for predicting behaviour. Fundamental theory and research by psychologists (see Fishbein and Ajzen 1975) has indicated that attitudinal structures are complex, and when known in full detail for a given behaviour, highly predictive. There are however insurmountable practical difficulties in collecting sufficiently full attitudinal information in large-scale field studies, so as to achieve these high levels of prediction. Instead, applied social researchers are limited to studying a few selected attitudes. There has accordingly been a search, continuing over several decades, for work-related attitudes that are pivotal, in the sense that (even though not highly predictive of any specific behaviour) they are somewhat predictive of varied types of work behaviour and also provide insights into attitude structures through their associations with many other kinds of attitudes.

Promising candidates for pivotal status are 'commitment attitudes'. The Concise Oxford Dictionary defines commitment as 'engagement or involvement that restricts freedom of action'. Commitment is therefore, by definition, related to choice, and to associated opportunity costs, making commitment attitudes of direct relevance to participation decisions, and also rendering them conceptually tractable within socio-

[1] The literature on industrial injuries and occupational ill-health is an exception to this generalisation, but that literature is not considered in this paper.

[2] "[T]he organizational sciences still reflect little knowledge of older workers that can inform practice of how to effectively manage this changing workforce." Treadway et al. 2005: 879.

economics as well as within organizational psychology, where research on commitment attitudes has so far been concentrated. Additionally, the commitment concept when applied to social relationships (such as employment) implies a degree of intended long-term stability (Porter et al. 1974) that appears particularly useful for interpretation, prediction, and policy formation.

In this paper, the main focus is on 'organizational commitment', the commitment attitude that has been most extensively researched to this time. Conceptually, employees with a high level of commitment towards their employing organization make choices that serve that organization's interests even at some opportunity cost to themselves. They are less inclined to quit, they make greater efforts to avoid being absent from work, and they are more likely to engage in 'citizenship behaviours' – to do helpful things that are not obligatory – and also in 'extra-role behaviours' such as those involving creativity or initiative. Evidence for these links with workplace behaviour comes from a large body of research on organizational commitment (for review see Matthieu and Zajac 1990; Riketta 2002). Organizational commitment, it has been argued (e.g. Mowday et al. 1982; Matthieu and Zajac 1990) is potentially valuable to individuals, to employers, and to society.

The main aims of this paper are to develop a theoretical basis for predicting changes in organizational commitment among older employees, and to test the derived hypotheses with the aid of national sample survey data. Alongside organizational commitment, this paper also examines change in other work-related attitudes that will help to clarify interpretations of change in commitment: a measure of non-financial employment attachment, and several measures of job satisfaction facets.

The structure of the paper is as follows. The next section provides an introduction to the concept of commitment as applied to the employment relationship. The third section initially develops a theoretical position respecting the employment relationship, older employees, and change in employment-age relations. In the second part of the third section, this theorization is used to derive hypotheses about change in older employees' attitudes. The fourth section describes the data and operational measures that are used to test the hypotheses. The fifth section describes the analysis method and the assumptions involved, the control variables included in the analysis, and supplementary analysis to test robustness. The sixth section presents all the results, and a discussion of the conclusions and implications follows in the seventh and final section.

2 The concept of commitment

As mentioned earlier, the general notion of commitment signifies an exclusive or restrictive relationship. In the case of organizational commitment (OC), a high level is taken to signify some focusing of the individual's concerns on the organization's interests, to the exclusion or down-playing of other interests. Porter et al. (1974) characterized OC in terms of individual identification with organizational goals and values, willingness to exert effort for the organization, and desire to remain in the organization. These authors and their colleagues were responsible for the development of a widely used survey instrument, the Organizational Commitment Questionnaire (OCQ) (see Price 1997 for details). Table 1 shows the wording of a shortened form of the OCQ, developed by Lincoln and Kalleberg (1990) and adapted by Gallie et al. (1998); it is also used in this paper. It takes the form of expressions of attitude towards the organization and towards the employee's own behaviour in the organization. Commitment (of the type outlined by Porter et al. 1974) is inferred from

the individual's willingness to endorse these expressions taken as a whole. The operational concept is often referred to as 'affective commitment'.[3]

[Table 1 about here]

2.1 Why commit?

A deeper question that remains to be considered is why in the first place do people make commitments of various kinds, including commitments to their organization? As commitment is a self-imposed restriction implying opportunity costs, we need to understand what, in principle, is gained in return. Two main kinds of response to this question have so far been offered.

The first type of answer is that commitments are *instrumental* in shaping behaviour to achieve desired goals. Howard Becker (1960) argued that commitment can be characterized as a 'side-bet', whereby individuals increase their stake in connection with an activity, relationship or goal which constitutes their main bet (e.g., their marriage or their job). Side-bets raise the incentive for success. If people fall short after committing themselves, they lose not only their major goal, but whatever they have additionally put at risk in their side-bets, which in some cases could be something as valuable as their good reputation. Offer (2006) suggests that individuals (and hence society) face a general problem of myopic choice, leading them into potentially disastrous short-termism: against this, they develop 'commitment technologies' (such as marriage vows and insurance policies) that help to safeguard the long term. Although this is not directly considered by Offer, a long-term employment relationship (often referred to as relational or implicit contracting) can be read as such a commitment technology, and an employee's commitment to an organization as an increased stake in the employment relationship and the long-term gains it (hopefully) offers. An employee who makes no commitment will be tempted to make choices for short-term gain (e.g., switching jobs) while losing the chance of larger returns in the long run.

An alternative view is that commitments are made to whatever has *intrinsic value* for the individual. For instance, one may commit to an organization *in that* it does something worthwhile for society, or conducts its business to high ethical standards, or has a congenial working atmosphere, or its management seriously cares about its employees' well-being...and so on. Pushing this approach a stage further, one can also argue that people have an inherent desire to make commitments, because commitments help to define identities. Specifically, many individuals get their identity through membership of social groups (Tajfel 1979). The proviso, however, is that the group (organization) must be seen by the individual as worthy of esteem, if membership is to be accompanied by commitment and identification. Ultimately, therefore, this type of explanation comes back to the *values* that individuals find in the group or organization (Anderson 1993). Of course, instrumental theories of commitment, such as the side-bet theory, also rely on a value framework, as Becker (1960) indeed emphasized. If commitment supports a main choice, that main choice itself involves an estimation of what is valuable, while the commitment may depend on a personal or social value attached to trustworthiness (sticking to one's commitments).

---

[3] The label is not entirely convincing. For reasons that should become clearer in the following discussion, psychologists wanted to separate feelings towards the organization based on values (=affective commitment) from 'attachment' based on calculation. However several of the items shown in Table 1 could, semantically, reflect calculative attachment as well as affective commitment; it is correlational structure that has led to this grouping.

A contingency theory of the nature of the employment relationship, and hence of the nature of commitment-related values in organizations, was put forward by Etzioni (1975 [1961]). In this, it is recognized that some organizations wield 'normative power' and are capable of eliciting 'moral commitment' in their employees or office-holders. Typically, these organizations provide public services invested with substantial moral significance, such as education, healthcare, or religion. However, the circumstances of 'utilitarian' (that is, commercial) organizations means that they rely on 'remunerative power' and can only obtain a weaker 'calculative commitment' from their employees.[4] Of course, many employees search actively for personal fulfilment in and through their work,[5] even in commercial environments. Equally, the employees of many socially worthy organizations in practice focus upon utilitarian individual aims such as job security, pay, career and pension, and so may well have a (largely) calculative commitment.[6] UK government policy towards the public services has for several decades sought to re-orientate them to competitive market principles, and this may also increase the orientation of employees towards personal financial and career outcomes. An interpretation of OC that stresses its dependence upon, or relationship to, utilitarian calculation, may have very wide application in contemporary market-dominated societies such as the UK, even though other values are to some extent present as well.

2.2 Contract violation and commitment

Whatever its basis, employees' OC evidently requires some assumptions on the part of employees about what the current employment relationship offers. What happens when those assumptions turn out to be false or mistaken? This question has been investigated within the framework of psychological contract theory, where it is referred to as contract violation or breach (Robinson and Rousseau 1994; Robinson 1996; Coyle-Shapiro and Kessler 2000). This research tends to show that employees frequently feel that employers have reneged on their promises, explicit or implicit, and that the general consequence is for employees with these feelings to reduce the level of their commitment to the organization. OC can shrink as well as grow, unravel as well as entwine; commitments are not immutable. Presumably, though, a committed employee will be slower to react negatively than one who is uncommitted, and will have a greater tolerance of an employer's shortcomings, at least initially. Cappelli (1999a) reports that even after the extensive downsizing of US large businesses in the 80s and 90s, employee commitment held up well, perhaps because employees preferred to blame job insecurity on market conditions rather than on their employer. This tends to support the belief of Porter et al. (1974) that the greater stability of OC was a prime advantage of the concept over that of job satisfaction.

3 Older employees, commitment, and change

3.1 Theoretical perspectives

---

[4] Etzioni also discussed a third type of organization, with 'coercive power', but this is not relevant here.

[5] An employee is often committed to her organization in part because it provides a convenient site in which to practice a fulfilling occupation; Lee et al. (2000) report a meta-analytic correlation of 0.45 between OC and *occupational* commitment.

[6] Such tendencies are not necessarily new. Max Weber considered that his concept of bureaucratic rationality, developed at the turn of the last century, applied to all types of large modern organizations, including established churches. The interplay of moral and calculative values within the Anglican hierarchy was extensively explored in literature of the Victorian era, notably by Anthony Trollope.

Concepts of labour market sorting and selection, and also of group identification (Tajfel 1979), suggest that employees over time tend to become increasingly committed to their organizations. As Matthieu and Zajac remark, '… one may be drawn initially to an organization because of exchange relationships (i.e., calculative organizational commitment), yet develop attitudes consistent with maintaining membership' (1990: 174). Matthieu and Zajac also hypothesize that with longer periods of service, employees accumulate sunk costs and hence become more committed in the calculative sense. Offering a more general economic interpretation, Baron and Kreps (1999: 65) envisage 'relation-specific assets' of varied types developing for both employee and employer through a long-term employment relationship.

These interpretations suggest that older employees will tend to develop higher OC. This is supported by the extensive meta-analysis of Matthieu and Zajac (1990), who reported a positive correlation of 0.2 between age and OC. Although it has been found that new recruits tend to have very high OC, which declines within a few years (Riketta 2002), this is not necessarily discordant. OC can be high during an initial honeymoon period, following which those who become disappointed reduce their commitments and move on. Across all Riketta's (2002) meta-analysis studies that considered age as a variable, the average relationship with OC was positive and of virtually the same magnitude as in Matthieu and Zajac (1990). It seems likely then that people over sufficient time sort themselves into jobs that suit them and so put themselves into position to gain progressive advantages, reflected in their supporting commitments. But what exactly is the nature of advantages that may through this process accrue to older employees?

Answers were provided, from partly different perspectives but with strikingly similar conclusions, by Edwards (1979) with his theory of 'bureaucratic control' and by Lazear (1981) with his incentive theory of 'deferred compensation'.[7] For Edwards, a central problem for the modern corporation was to obtain compliance from growing armies of administrative, technical and professional staff. Systems of bureaucratic control, involving personal appraisals,[8] seniority increments and privileges, and promotion tracks, became the general solution to this problem, and because of its success it was frequently extended beyond white-collar ranks to skilled manual employees. One implication, illustrated with case study material by Edwards, was that older employees tended to be rewarded above their level of productivity, while younger employees received less than their current productivity would justify.

Lazear (1981) presents a more formalized theory based on principal-agent contracting. A central element is the cost of monitoring performance against potential shirking by employees. Where the monitoring costs are high (as would often be the case with complex job requirements), any system that avoids these costs, while preventing shirking, provides an economic gain that can be shared between employer and employee. Deferred compensation (including seniority pay and occupational pensions) is such a system, provided that the avoided monitoring cost is sufficiently high. The younger employee is underpaid relative to effort, but knows that at a later time this will be compensated by rewards that exceed effort. She therefore has an incentive to keep in the favour of the employer until the deferred rewards can be obtained. Although difficult to test empirically in a direct way, such evidence as has been collected is supportive of the deferred

[7] Several other economic theories make similar predictions to those of Lazear: see Kotlikoff and Gokhale (1992) for a brief review.

[8] Edwards calls these 'evaluations' but the term 'appraisals' is nowadays more familiar.

compensation theory (see especially the study by Kotlikoff and Gokhale 1992; these authors also review related evidence).

These theories indicate that, under the kinds of remuneration and career systems that have been widely practiced in the UK as well as in the USA, older employees will have good reason for *at least* calculative commitment. Under these circumstances, they should generally be working under a favourable effort-to-reward regime, and reaping the benefits of previous long-term commitment to their employer. Additionally, they may be gaining, relative to younger employees, in terms of wider relation-specific assets as posited by Baron and Kreps (1999). These might include job protection (if for instance 'first in last out' applies), and good fit between job characteristics and personal preferences (if employees have scope to shape their own tasks over time, or get preference in moving into congenial jobs).

There are however reasons for questioning whether the advantages of older employees have remained a reality in the changing economic and technical environment of 'late capitalisms'. A widely accepted view is that increasing market competition over the past two decades, as indicated for instance in rising proportions of international trade relative to national or world output, has led to extensive changes in business policies, including in regard to employment.[9] In this situation many commentators have questioned whether long-term employment relationships can survive. Conspicuous examples of employer policies have included downsizing, delayering (involving fewer promotion slots), outsourcing, the use of temporary or contract labour to replace permanent employees, and sometimes explicit statements that employees can no longer expect long-term jobs with the organization. What then becomes of deferred compensation, what becomes of older employees' advantages, and what becomes of their commitment?

To address change of this kind, Sørensen's (2000; 2001) theory of employment 'rents' is helpful. Sørensen defined employment rents as payments above the market-clearing value of labour services, accruing because of insiders' protection against market forces. He linked this specifically with the existence of large differentials in rewards that have persisted between classes. But as markets become more competitive and break down insider protections, Sørensen argued that these rents would be squeezed out and only individual ability and effort would be rewarded, at its current market rate. A partly similar argument has been advanced by Cappelli (1999b) in suggesting a 'death of careers', as businesses turn to short-term hiring to respond to rapidly changing opportunities and threats.

There is evidence to show that, in the UK in the 1990s at least, the specific changes in employment policies predicted by Sørensen or by Cappelli did *not* on average take place. Class differentials in rewards and benefits did not decay but became even more pronounced; and career structures, after some decay in the early 90s, were subsequently reinstated by many employers with a corresponding increase in promotion opportunities (McGovern et al. 2007). Yet Sørensen's general argument may be valid even if the application to class differences was mistaken. Class differences, and promotion structures to maintain membership of the higher occupational classes, held up because managerial and professional knowledge are crucial competitive assets, and arguably still more valuable in a period of rapid change. At the same time, though, employers may well have seen older employees as a potential source of cost savings. If according to earlier policies older employees

[9] We do not reference this perception since it is now so familiar. For an introduction to the relevant literature, see for instance McGovern et al. 2007: 1-12.

tended to be paid above their current productivity, then changes in their effort-reward bargain would have short-term attractions for employers. One can object that (according to deferred compensation theory) the advantages of older employees formed part of an optimal bargain, so that to dismantle this bargain would be counter-productive in the long run. But in the first place, when short-term pressures dominate, these long-term considerations may well be set aside. In the second place, moreover, the bargain is only optimal when monitoring costs are high. But the advent in the 1990s of low-cost ICT-based task- and performance-monitoring for large proportions of employees (McGovern et al. 2007: 169-72) have made external control more feasible for a wide range of white-collar and service jobs: this has been extensively illustrated in the literature on call centres (e.g., Bain and Taylor 2000; Yeuk-Mui 2001; Taylor and Bain 2005). Both considerations might lead employers to renege on bargains that have made older employees costly, however rational those bargains may have been at some earlier time. This would affect older employees' attitudes adversely, in view of the research on psychological contract violation.

3.2 Hypotheses

On the basis of the preceding discussion, the main hypothesis is as follows:

Hypothesis 1: The commitment of older employees toward their organizations declined in the UK over the 1990s, relative to younger employees.

To supply an interpretation of Hypothesis 1, it is also proposed:

Hypothesis 2: Older employees in the UK over the 1990s (henceforth, 'older employees') perceived a deterioration of their employment terms (psychological contract), relative to their expectations and relative to younger employees.

There are several potential forms in which a deterioration could have been perceived or inferred by older employees, leading to a series of conditional elaborations of Hypothesis 2. On the basis of deferred compensation theory (or incentive theory more generally) they could have experienced a worsening of the terms of their effort-reward bargain, in the form of higher effort being required, or lower reward being offered (always in expectational and relative terms, *here and hereafter*). Then:

Hypothesis 2a: Older employees would have become more dissatisfied with their work effort demands.

Hypothesis 2b: Older employees would have become more dissatisfied with their rewards via pay and benefits.

An alternative view however would focus on declining job security (e.g., Burchell 2002). This deterioration, whether real or perceived, would imply a reneging not only on deferred compensation for older employees, but perhaps also on the overall long-term relational contract. In that case:

Hypothesis 2c: Older employees would have become more dissatisfied with their job security.

If the value of a long-term employment relationship includes more congenial jobs or tasks, then it is also possible that these 'relation-specific assets' have been

undermined through changes in work organization that are a managerial response to competitive pressure and uncertainty (Worrall and Cooper 2001). More specifically, Gallie et al. (2001) have argued that OC has been adversely affected by a decline in the task discretion given to employees. Although that research did not specifically consider age effects, it is possible that older employees would feel greater disappointment in having discretion withheld from them. It would then follow that:

Hypothesis 2d: Older employees would have become more dissatisfied with the nature of the work that they do.

Finally, older employees might believe that their work situation merely reflects wider economic or business conditions, as in the interpretation of employees' response to the market squeeze put forward by Cappelli (1999a). Then:

Hypothesis 2e: Older employees would have a declining attachment to employment as a whole, rather than (or as well as) lower OC.

4 Data and variables

The aim is to test the hypotheses with data that are representative of the whole British labour force. This is appropriate because the changes that are imagined to have impacted older employees stem from general changes in the economy and in the technology of control.

4.1 Data

The main analysis uses two similar national surveys of British employees, carried out in 1992 and 2000/1. The 1992 survey, known as Employment in Britain (EIB), has previously been reported in Gallie et al. (1998). An aim of the 2000/1 Working in Britain survey (WIB) was to make comparisons with 1992 and for that purpose it replicated many of the questions contained in the earlier survey including those used for the present analysis. The data and documentation of both surveys are accessible to the academic community through the UK Data Archive (www.data-archive.ac.uk).

The two surveys provide cross-sectional national samples, obtained by a stratified random sample of private addresses with further random selection of one employed respondent per address. The achieved samples were 3458 employees in 1992 (71 per cent response rate) and 2132 in 2000/1 (65 per cent response rate), and the age range in both surveys was 20-60. Information in both surveys was collected from respondents by means of a personal interview in the home, using a structured questionnaire, supplemented by a self-completion form. Weights were constructed for both surveys in a similar manner, to correct for survey design and non-response.

Additional data from two other national surveys, the Workplace Employee/Employment Surveys of 1998 and 2004, were used for a sensitivity test; these data sources will be briefly described in section 5.3.

4.2 Variables

The main dependent variable was a measure of OC as shown in the first column of Table 1. The OC measure was a summation of the six items: with each item scored from 1 (least favourable attitude) to 4 (most favourable), the summative scale has a range of 6-24. Listwise deletion of cases was applied where there was no response

or the response was 'Don't know'. The reliability of the scale items (Cronbach alpha) was 0.79 in each survey. In a variety of exploratory principal components analysis and factor analysis studies,[10] the six items were always indicated as a distinct factor.

Referring to Hypotheses 2a-2d, six facet satisfaction items were analysed, and the wording of these is shown in Table 2. The items had a seven-point response scale and were scored with dissatisfaction high. The concept of 'dissatisfaction with work demands' was measured by summing two of these facets, one relating to hours of work and the other to the amount of work, so that the scale had values of 2-14. Similarly, 'dissatisfaction with pay and benefits' was measured by summing the separate items relating to pay and to fringe benefits. 'Dissatisfaction with job security' and 'dissatisfaction with the work itself' were each measured through a single satisfaction item with values 1-7.

[Table 2 about here]

There was a slight variation in the labelling of two of the response scale points, between the 1992 and 2000/1 surveys (see notes to Table 2). This variation could affect the mean or dispersion of the items. However, as will become apparent in section 5, the analysis method can reasonably be assumed to eliminate most or all of the mean bias that might result from this wording artefact. Also, the cross-survey item variances are not heterogeneous to a significant degree.

The final measure used as a dependent variable, relating to Hypothesis 2e, can be labelled 'non-financial employment attachment' (EA). Deriving from Warr (1982), its wording in both surveys was as follows: 'If you were to get enough money to live as comfortably as you would like for the rest of your life, would you continue to work, not necessarily in your present job, or would you stop working?'. The 'continue to work' option was scored 1 while 'stop working' and 'don't know' were scored zero. Note that the wording makes the continued employment option independent of the present employer, and so distances it from OC. Whereas OC is positively correlated with age (see section 2), EA is negatively related to age (Gallie et al. 1998).

The explanatory variables are time period and age group. The survey dates define two time periods, 1992 and 2000/1. The 1990s were, as noted earlier, a period of intensifying international competition and of technological and market change, and it is these factors that are hypothesized to drive a relative decline in the employment situation of older employees. To test the hypotheses, two age groups are defined: 'younger'=20-44, and 'older'=45-60. As a sensitivity test, an alternative cut (20-49 v. 50-59) will also be considered (see section 5.3).

Control variables are described in section 5.

5 Analysis

5.1 The 'difference in differences' model

The hypotheses have the form of a change over time for older employees relative to younger employees. Tests of the hypotheses use the analytical model known as 'difference in differences' (DiD). In the regression setting, this features an interaction of time period with group, where (by hypothesis) groups are differentially affected by

[10] These analyses included: the six items alone; inclusion of an additional two items from the OCQ (in the 1992 survey data only); the six items together with 15 facet satisfaction items.

some change or influence that is correlated with time period. With two time periods and two groups, this gives rise to the standard equation for individual i:

$$Y_i=\beta_0 + \beta_1 age_{1i} + \beta_2 time_{1i} + \delta_1 age_{1i}*time_{1i} + u_i \qquad (1)$$

where Y is the outcome and age and time are dummies with subscripts (0,1). The coefficient on the interaction term, δ_1, estimates the effect of interest for hypotheses of the DiD type. The interaction coefficient is equivalent to the mean between-group difference across different times, or the mean between-time difference across different groups, as shown below:

$$\delta_1 \equiv (Y_{a1,t1}-Y_{a1,t0}) - (Y_{a0,t1}-Y_{a0,t0}) \qquad (2a)$$

$$\equiv (Y_{a1,t1}-Y_{a0,t1}) - (Y_{a1,t0}-Y_{a0,t0}) \qquad (2b)$$

where the subscripted Ys are (age x time) subgroups' mean outcomes. Further elucidation of DiD is provided by Heckman and Robb (1985) and Abadie (2005).

The advantage offered by the DiD analysis design is that it removes unobserved differences between the two groups to the extent that these are constant over time, and differences between time periods to the extent that these are constant between groups. The latter is particularly useful in the present case. Since 1992 witnessed an economic recession, while in 2000 the economy and labour market were buoyant, any absolute change in the commitment levels of older employees across the two years could be interpreted as part of a general shift in attitudes across the populace rather than something specifically related to age. By making the comparison relative to younger employees, one can reasonably expect to eliminate population-wide shifts in attitudes that result from economic circumstances to which all are exposed.

The main difficulty with the DiD method is its interpretive assumption. We wish to interpret a differential effect of time period on older employees in terms of a withdrawal of favourable treatment by employers over the period in question. This involves the strong assumption that there are no *other* changes in the relative position of older employees over the same period. Of course, this assumption is not testable since an infinite number of other changes might be imagined. It is for this reason that Hypotheses 2a-d are important: they provide more specific interpretations of older employees' experiences which, if consistent with observed changes in OC, strengthen the evidence in favour of the main hypothesis. Hypotheses 2a and 2b are most clearly linked to the deferred compensation view of older employees' commitment. Hypotheses 2c-e provide other viewpoints that overlap with but are partly different from the deferred compensation viewpoints. Accordingly, if the evidence supports any of 2c-e but supports neither 2a nor 2b, this would undermine an interpretation in terms of deferred compensation even if the evidence also supports Hypothesis 1.

A further requirement is to control for relevant changes in the composition of the groups that are to be compared. In the present case, the years 1992 and 2000 had large differences in unemployment. Remaining in employment under the adverse conditions of 1992 might have needed a higher level of commitment than in the tight labour market of 2000. This could have particularly affected older people since an alternative status such as retired or incapacitated would be more available to them than to younger people. Accordingly, the analysis should include controls for the variables that are believed to affect participation in employment.

5.2 Analysis specifications

Three specifications were estimated, each separately for female and male employees, allowing all estimates to vary freely by gender.

- The first specification contained only an intercept and the interaction between age group and time period, providing a baseline against which inclusion of controls could be compared.

-The second specification contained a set of variables likely to affect participation. The individual's earning capacity was represented by highest educational qualification,[11] and occupational class[12] (the latter was deemed a more reliable and comprehensive indicator of acquired skills than vocational qualifications). To indicate other household income, a variable was constructed from questions about whether the respondent had a partner, whether the partner was employed, and if employed whether in a higher occupation (managerial/professional, associate professional, or administrative). Additionally, to represent childcare costs, the age group of the youngest dependent child (under 5, 5-11, or 12-16) was included, with no dependent child as the reference category.

- The third specification extended the second by also including dummies for whether the individual had been unemployed long-term (six months or more), or short-term (less than six months), within the previous five years. It also included a dummy for long-term illness or disability.

Specification 2 is regarded as the main specification, with specifications 1 and 3 being provided to assess the stability of the estimates. The additional variables of specification 3 might be considered endogenous (for instance, OC might affect chances of being dismissed or otherwise becoming unemployed; and people continuing in paid work despite illness might have particularly high OC). For that reason these variables would not be suitable for inclusion in a main specification. Their addition does however provide a reasonably strong test of stability.

5.3 Supplementary analyses to assess sensitivity

If shifts in OC among older employees relate to changes in the operation of long-term relational contracts (as exemplified in deferred compensation), then these shifts in OC should become more marked as employees approach nearer to the age of retirement. To assess this supplementary hypothesis, the analyses were re-run with the age groups redefined to be 20-49 and 50-60 instead of 20-44 and 45-60. There were too few young children in the families of the 50-60 age group to maintain the 'age group of youngest child' variable in this supplementary analysis. It was replaced by a dummy for presence of any child under 16 in the household. Other control variables were unchanged.

Another issue is whether younger employees were more capable of exploiting opportunities that came from the improvement in the economy and business

[11] There were four categories: degree, A or AS level or Scottish equivalent, O-level or (various) equivalents, and lower than O-level. Qualifications lower than O-level equivalent, and no qualification, were combined, since there were differences in the separate proportions across surveys that possibly resulted from response artefact. Once combined, the across-survey proportions were similar.

[12] The NSSEC classification was used, with six classes.

conditions between 1992 and 2000. If so, could this lead to a divergence in attitudes between younger and older groups? To assess this, we ran analyses of OC with data from national surveys of employees carried out in 1998 and 2004. These dates both fall within a long period of economic and growth and stability and the over-time comparisons are therefore unaffected by recovery from the recession of the early 90s. If the age group by time period effect is present in 1992-2000 but disappears in 1998-2004, then the business cycle is likely to provide the key. If however there is a similar effect in both analyses, then the result requires a more fundamental explanation such as provided in section 3.

The 1998 Workplace Employee Relations Survey and the 2004 Workplace Employment Relations Survey each offer more than 20,000 employees for analysis. There are numerous differences between WERS98/04 and the EIB and WIB surveys, and a full description of the WERS data will be deferred to a later paper (many details can be found in Cully et al. 1999; Kersley et al. 2006). In brief, we note that (1) the OC measure is based on three items that correspond to a subset of the Lincoln-Kalleberg items – see the right-hand column of Table 1; (2) employees in workplaces with less than 10 employees are not covered in the sample; (3) the age groups for the analysis are limited to below 50 and 50-plus (a continuous age measure is not available); (4) the control variables are similar to those used for the main specification (Model 2) of EIB/WIB, except that partner's occupation is not available and the 1-digit Standard Occupational Classification (SOC) is used in place of NSSEC-class. Intra-workplace clustering is dealt with by means of the robust variance estimator, which is also used in all the EIB/WIB analyses.[13]

6 Results

This section starts with the results of the main analyses, with older employees defined as 45-60. This is followed by a brief account of the results of the variant analyses with older employees defined as 50-60. Finally the results using the WERS98/04 data are also summarised.

6.1 Main analyses

In Table 3, the chief results relating to Hypothesis 1 are presented. These are the interaction effects of age group and time period (survey) on OC (for full model results for models 2 and 3, see Appendix Table). For both men and women, and for each of three specifications analysed, older employees shifted in 2000 toward lower OC, relative to younger employees. These effects were in all specifications significant at least at the five per cent significance level. The estimates were little affected by changes in the specification. These results therefore provide strong evidence in support of Hypothesis 1. The results also provide several points of detail that are of value for further interpretation. In 1992, older employees had higher levels of OC than younger employees, consistent with previous literature. By 2000, both younger and older groups on average had shifted toward lower OC. However, the shift was considerably greater in the case of older employees, so that by 2000 there was no appreciable difference by age group.

[Table 3 about here]

[13] Alternative OLS specifications with additional variables available in WERS, and also models with workplace fixed effects, have been estimated besides those reported here. It is hoped to report these results in a subsequent paper.

Table 4 shows (in abbreviated form) the main results relating to employee dissatisfaction with various facets of their employment (Hypotheses 2a-2d). All coefficient estimates on the age group by time period interaction had positive sign (older employees tended to become relatively more dissatisfied over time). However the significance of these interaction effects varied, as follows.

Hypothesis 2a: Older employees became *significantly* more dissatisfied with the demands of their work (hours and work amount), relative to younger employees. The significance level was 1 per cent in the case of female employees and 10 per cent in the case of male employees (see also section 6.2).[14]

Hypothesis 2b: The difference over time between older and younger employees in regard to pay and benefits was not statistically significant for either female or male employees.

Hypothesis 2c: The difference over time between older and younger employees in regard to job security was not statistically significant for either female or male employees.

Hypothesis 2d: Older *female* employees became significantly more dissatisfied with the work itself than did younger female employees. The corresponding effect in the case of men was statistically non-significant.

[Table 4 about here]

Overall, these results provide support for the view that older employees' dissatisfaction was particularly concentrated in the area of work demands (hours and amount of work). This is consistent with an interpretation of falling OC in terms of a deteriorating effort-reward bargain through higher than expected effort requirements. To explore this result further, separate analyses were also conducted for dissatisfaction with hours and dissatisfaction with the amount of work. For dissatisfaction with hours, the relevant effect was significant at the 5 per cent level for older male employees and at the 10 per cent level for older female employees, while for dissatisfaction with amount of work, the effect was significant at the 1 per cent level for older female employees, but non-significant for older male employees.[15] It appears then that both genders of older employees have experienced growing relative dissatisfaction about work demands, but this dissatisfaction is focused on partly different features of work demands by women and men. This difference in expression can be further interpreted by considering the different distributions of paid hours by gender, and of unpaid hours of housework by gender, that prevail in Britain (e.g., see Crompton 1999; Gershuny 2000).

There was no evidence that older employees were becoming relatively more dissatisfied with pay and benefits, nor job security. The significant relative increase in dissatisfaction with the nature of work among older female employees also cannot be considered evidence of a relative deterioration in task discretion (or other intrinsic characteristics of work tasks) for older employees, for there is no reason why this

[14] The joint probability that these results arose by chance, bearing in mind that four separate analyses were run for each gender and that the results come in pairs, is less than 0.02.

[15] The estimated coefficients (standard errors) from Model 2 were as follows: dissatisfaction with hours, older female interaction 0.221 (0.12), older male interaction 0.327 (0.13); dissatisfaction with amount of work, older female interaction 0.306 (0.11), older male interaction 0.125 (0.16).

should not also apply to older *male* employees, given that educational qualifications and occupational class are controlled in models (2) and (3). A gender-specific interpretation would be required, but this lies beyond the scope of the present paper.

Table 5 presents the key results from the analysis of non-financial employment attachment (EA), which refers to Hypothesis 2e. This analysis had a binary dependent variable, and the table shows the estimated marginal effects, evaluated at mean values, for probit models. These effects can be interpreted as changes in the probability of expressing a positive EA, for a unit change in the explanatory variable.

[Table 5 about here]

Older female employees became relatively *more attached to employment* over the period, compared with younger females. In the case of older male employees, though signs were negative, the estimates were near-zero and non-significant. Apparently, then, the increasing disaffection indicated by the decline in OC did *not* also reflect a declining desire to participate in employment.

6.2 Changing the age cut from 45 to 50

The variant analyses in which 'older' employees were defined as those aged 50-60 generally confirm the picture from the main results. Table 6a abstracts the key results concerning OC, and Table 6b does the same for dissatisfaction with work demands: in each case, the estimates with the age cut-off at 50 is compared with the corresponding result with the age cut-off at 45.

[Table 6 about here]

It can be seen that older employees' OC becomes still more negative when the age cut-off is shifted to 50, and the estimated effects for older female employees are now significant at the 1 per cent level whereas they were at the 5 per cent level in the main analysis. Similarly, dissatisfaction with work demands becomes greater, and the estimated effects for older male employees are now significant at the 5 per cent level whereas they were at the 10 per cent level in the main analysis. These results are consistent with the prediction that a decline in the relative employment conditions for older employees would be expressed more strongly in samples closer to retirement.

The variant analyses for dissatisfaction with financial reward (pay and benefits), dissatisfaction with job security, and dissatisfaction with the work itself, produced no significant changes: the age group by time period effects remained non-significant at the 10 per cent level. The key estimates for the Model 2 specification only are summarized in Table 7.

[Table 7 about here]

6.3 Summary OC results from WERS98/04

A range of variant analyses has been carried out with the WERS data, but here only one such analysis is presented, since all analyses produced a qualitatively similar

picture.[16] Table 8 presents the full interaction effects on OC for a specification with control variables that are as near as possible to those used in the main analysis (see model 2 in Table 3). It shows that employees aged 50 and over, whether female or male, shifted towards lower relative levels of OC from 1998 to 2004. This interaction effect was significant at the 5 per cent level for both women and men. Other details of the table show that employees aged below 50 *increased* their level of OC over the 1998-2004 period (this was in contrast with the 1992-2000 analysis), and that older employees started in 1998 at a relatively high level of OC, but their level *fell* over the period, eliminating most (for women) or all (for men) of the age differential by 2004.

[Table 8 about here]

The magnitude of the effects cannot be compared in any rigorous manner with those from the 1992-2000 analysis. Apart from differences in sample and in analysis specifications, the OC measures are not the same, and have a different distribution. For instance, the weighted mean level of OC in the WERS 1998 employee sample was 10.62, while the corresponding mean for the EIB 1992 data was 15.95. The significance levels (t-statistics) also are not strictly comparable, because WERS has much larger samples but this is offset by far more extreme weighting because of the sampling design. None the less, the *qualitative* similarity between the main analyses and the WERS variants is striking.

7 Conclusions and implications

The research presented in this paper has used theories about organizational commitment (OC), about the relative treatment of older employees, and about competitive pressure on employment rents, to derive a main hypothesis about decline in relative OC among older employees over recent years. Using national survey data, the analysis has supported the main hypothesis by providing strong evidence of a greater fall in OC among older employees, than among younger employees, over the 1992-2000 period. This evidence is robust to variation in model specification and in choice of cut-off between age groups. It has also been extended by an analysis of alternative datasets for the 1998-2004 period, which yielded qualitatively similar findings concerning OC; this eliminated a competing explanation concerning possible age-related effects of the business cycle. In the terms of the theoretical discussion, the results of the OC analysis suggest that 'seniority rents' have been falling, leading to a sense among older employees that their relational contract has been breached.

The analysis of the 1992-2000 datasets also covered several facets of job dissatisfaction that might provide further interpretive insight into the OC findings. It appears that older employees do *not* tend to feel that their financial expectations have been undermined, but *do* tend to feel that greater work demands are being made of them than they regard as due at their stage of the work-life cycle. Increases in work intensity and in long hours have been widely reported over the past two decades (e.g., Nichols 1991; Gallie et al. 1998; Green 2001; 2006; McGovern et al. 2007). This, we suggest, conflicts with the implicit effort-reward bargain of the deferred compensation type. Interpretation in terms of implicit contracts and deferred compensation is also strengthened by the lack of support for the partially competing

[16] The variants included: different sets of control variables; unweighted instead of weighted analyses; workplace fixed effects models, and workplace population-averaged (weighted) models.

hypotheses concerning job insecurity, intrinsic nature of work, and general disaffection with employment.

From a policy viewpoint, the reassuring part of the findings is that older employees are not expressing a declining attachment to remaining in the labour market, and in the case of older female employees, attachment to employment has even been increasing. However, one can assume that for most older employees the practical way to stay employed is to remain with the existing employer, and declining OC signals a weakening of the desire to remain. Furthermore, employers themselves may feel that older employees are of less value if their commitment falls, and if they react negatively to demands for increased work effort. The bond between older employee and employer therefore seems likely to be weakening on both sides. Of course, it is possible that future cohorts entering the late stages of their careers will have different expectations, and so these findings may not be predictive for the long term. This however is a risky assumption since if it fails, older employees' attitudes may become increasingly negative, with adverse implications for retaining them in employment. More constructively, initiatives for work-life balance reform should take more account of older employees.

Acknowledgements

The paper is a development of a presentation made at a conference on "Orientations to and Experiences of Work" at Cardiff University in October 2008; this conference was part of the 'WAM-Net' series supported by the Economic and Social Research Council. The author is grateful to the participants for their comments.

Acknowledgements concerning the Employment in Britain Survey will be found in Gallie et al. (1998) and concerning the Working in Britain Survey in McGovern et al. 2007.

The author acknowledges the Department of Trade and Industry, the Economic and Social Research Council, the Advisory, Conciliation and Arbitration Service and the Policy Studies Institute as the originators of the 1998 and 2004 Workplace Employment Relations Survey data, and the Data Archive at the University of Essex as the distributor of the data. The National Centre for Social Research was commissioned to conduct the survey fieldwork on behalf of the sponsors.

The usual disclaimers apply.

References

Abadie, A. (2005) Semiparametric difference-in-differences estimators, *Review of Economic Studies,* 72: 1-19.

Anderson, E. (1993) *Value in ethics and economics*. London: Harvard University Press.

Baron, J.N. and Kreps, D.M. (1999) *Strategic Human Resources: Frameworks for General Managers,* Hoboken NJ: Wiley.

Bain, P. and Taylor, P. (2000) Entrapped by the "Electronic Panopticon"? Worker resistance in the call centre, *New Technology, Work and Employment,* 15:2-18.

Becker, H.S. (1960) Notes on the concept of commitment, *American Journal of Sociology,* 66: 32-42.

Burchell, B. (2002) 'The prevalence and redistribution of job insecurity and work intensification', in B. Burchell, D. Ladipo and F. Wilkinson (eds.) *Job Insecurity and Work Intensification,* London: Routledge.

Cappelli, P. (1999a) *The New Deal at Work: Managing the market-driven workforce*, Boston, MA: Harvard University Press.

Cappelli, P. (1999b) Career jobs are dead, *California Management Review*, 42: 146-66.

Coyle-Shapiro, J. and Kessler, I. (2000) Consequences of the psychological contract for the employment relationship: A large scale survey, *Journal of Management Studies,* 37: 903-30.

Crompton, R. (1999) 'Restructuring gender relations and employment: The decline of the male breadwinner' in R. Crompton (ed.) *Restructuring Gender Relations and Employment,* Oxford: Oxford University Press.

Cully, M., Woodland, S., O'Reilly, A. and Dix, G. (1999) *Britain at Work: As depicted by the 1998 Workplace Employee Relations Survey*, London: Routledge.

Edwards, R.C. (1979) *Contested Terrain: The transformation of the workforce in the Twentieth Century*, New York: Basic Books.

Esping-Andersen, G. (1996) 'After the Golden Age? Welfare state dilemmas in a global economy', in G. Esping-Andersen (ed.) *Welfare States in Transition: National Adaptations in Global Economies,* London: Sage.

Etzioni, A. (1975 [1961]) *A Comparative Analysis of Complex Organizations*, revised and enlarged edition, New York: Free Press.

Fishbein, M. and Ajzen, I. (1975) *Belief, Attitude, Intention and Behavior: An introduction to theory and research,* Reading, MA: Addison-Wesley.

Gallie, D., Felstead, A. and Green, F. (2001) Employer policies and organizational commitment in Britain 1992-97, *Journal of Management Studies,* 38: 1082-1101.

Gallie, D., White, M., Cheng, Y. and Tomlinson, M. (1998) *Restructuring the Employment Relationship,* Oxford: Oxford University Press.

Gershuny, J. (2000) *Changing Times: Work and leisure in postindustrial society*, Oxford: Oxford University Press.

Green, F. (2001) It's been a hard day's night: The concentration and intensification of work in late 20th century Britain, *British Journal of Industrial Relations*, 39: 53-80.

---. (2006) *Demanding Work: The paradox of job quality in the affluent economy*, Woodstock: Princeton University Press.

Heckman , J. and Robb, R. (1985) 'Alternative methods for evaluating the impact of interventions', in Heckman, J. and Singer, B. (eds.) *Longitudinal Analysis of Labor Market Data,* New York: Cambridge University Press.

Kersley, B., Alpin, C., Forth, J., Bryson, A., Bewley, H., Dix, G. and Oxenbridge, S. (2006) *Inside the Workplace: Findings from the 2004 Workplace Employment Relations Survey*, London: Routledge.

Kotlikoff, L.J. and Ghokale, J. (1992) Estimating a firm's age-productivity profile using the present value of workers' earnings, *Quarterly Journal of Economics,* 107: 1215-42.

Lazear, E. P. (1981) Agency, earnings profiles, productivity, and hours restrictions, *American Economic Review,* 71: 606-20.

Lee, K., Carswell, J.J. and Allen, N.J. (2000) A meta-analytic review of occupational commitment: relations with person- and work-related variables, *Journal of Applied Psychology,* 85: 799-811.

Lincoln, J.R. and Kalleberg, A.L. (1990) *Culture, Control, and Commitment: A study of work organization and attitudes in the United States and Japan,* New York: Cambridge University Press.

McGovern, P., Hill, S., Mills, C. and White, M. (2007) *Market, Class, and Employment,* Oxford: Oxford University Press.

Matthieu, J.E. and Zajac, D.M. (1990) A review and meta-analysis of the antecedents, correlates, and consequences of organizational commitment, *Psychological Bulletin,* 108: 171-94.

Mowday, R., Porter, L.W., and Steers, R.M. (1982) *Employee-organizational Linkages,* New York: Academic Press.

Nichols, T. (1991) Labour intensification, work injuries and the measurement of percentage utilization of labor (PUL), *British Journal of Industrial Relations,* 29: 569-601.

Offer, A. (2006) *The Challenge of Affluence: Self-control and well-being in the United States and Britain since 1950,* Oxford: Oxford University Press.

Porter, L.W., Steers, R.M., Mowday, R.T. and Boulian, P.V. (1974) Organizational commitment, job satisfaction, and turnover among psychiatric nurses, *Journal of Applied Psychology*, 1974, 59: 603-9.

Price, J.L. (1997) Handbook of organizational measurement, *International Journal of Manpower*, 18: 303-553.

Riketta, M. (2002) Attitudinal organizational commitment and job performance: A meta-analysis, *Journal of Organizational Behavior,* 23: 257-66.

Robinson, S.L. (1996) Trust and breach of the psychological contract, *Administrative Science Quarterly,* 41: 574-99.

-- and Rousseau, D.M. (1994) Violating the psychological contract: Not the exception but the norm, *Journal of Organizational Behavior,* 15: 245-59.

Sørensen, A. (2000) Toward a sounder basis for class analysis, *American Journal of Sociology* 105:1523-58.

-- (2001) 'Careers and employment relations' in I. Berg and A. L. Kalleberg (eds.) *Sourcebook of Labor Markets: Evolving structures and processes*. New York: Kluwer Academic/Plenum Press.

Tajfel, H. (1979) 'Social categorization, social identity and social comparison', in H. Tajfel (ed.) *Differentiation between Social Groups: Studies in the social psychology of intergroup relations,* London: Academic.

Taylor, P. and Bain, P. (2005) India calling to the far away towns: The call centre labour process and globalization, *Work, Employment and Society,* 19:261-82.

Treadway, D.C., Ferris, G.R., Hochwarter, W., Perrewe, P., Witt, L.A. and Goodman, J.M. (2005) The role of age in the perception of politics – job performance relationship: A three-study constructive replication, *Journal of Applied Psychology,* 90: 872-81.

Warr, P.B. (1982) A national study of non-financial employment commitment, *Journal of Occupational Psychology,* 55: 297-312.

Worrall, L. and Cooper, C. (2001) *The Quality of Working Life: 2000 Survey of Managers' Changing Experiences,* London: The Institute of Management.

Yeuk-Mui, M.T. (2001) Information technology in frontline service work organization, *Journal of Sociology,* 37: 177-206.

Table 1 Questions on organizational commitment (OC)

Adapted Lincoln & Kalleberg OC scale used in EIB 1992 and WIB 2000*	WERS 1998 and WERS 2004 OC scale
I find that my values and the organization's values are quite similar	I share many of the values of my organization
I feel very little loyalty to this organization	I feel loyal to my organization
I am proud to be working for this organization	I am proud to tell people who I work for
I am willing to work harder than I have to in order to help this organization succeed	
I would take almost any job to keep working for this organization	
I would turn down another job with more pay in order to stay with this organization	

* See Gallie et al. 1998: 237-8; Price 1997.

Table 2 Questions on facets of job satisfaction used in EIB and WIB

Question introduction: 'I'm going to read out a list of various aspects of jobs, and for each one I'd like you to tell me, from this [response] card, which number best describes how satisfied or dissatisfied you are with that particular aspect of your own present job.'	
Label	Wording
Work effort demands	The hours you work
	The amount of work
Rewards	Your pay
	Fringe benefits
Job security	Your job security
Work itself	The work itself

Note: Responses in EIB 1992 were labelled 'completely satisfied, very satisfied, fairly satisfied, neither satisfied nor dissatisfied, fairly dissatisfied, very dissatisfied, completely dissatisfied' with associated response numbers 1-7. The responses in WIB 2000 were the same except that 'fairly' was dropped before 'satisfied' and 'dissatisfied'.

Table 3 OLS estimates of age group by year interaction effects on OC in pooled EIB 1992 and WIB 2000 data

Model (see note)	(1)	(2)	(3)	(1)	(2)	(3)
	female sub-population			male sub-population		
	coefficient estimates (robust standard errors below)					
over 44	0.8858	0.7719	0.7368	1.0265	0.8283	0.8539
	(0.2181)**	(0.2276)**	(0.2277)**	(0.2475)**	(0.2465)**	(0.2468)**
wib 2000	-1.0769	-1.0397	-0.9792	-1.1275	-1.0653	-1.0694
	(0.1500)**	(0.1499)**	(0.1513)**	(0.1578)**	(0.1541)**	(0.1527)**
over 44 & wib	**-0.6713**	**-0.6851**	**-0.7029**	**-0.9258**	**-0.8755**	**-0.8828**
	(0.2720)*	**(0.2729)***	**(0.2717)***	**(0.3029)****	**(0.2894)****	**(0.2871)****
Constant	15.6824	15.0423	15.0964	15.6425	15.7904	15.8341
	(0.1164)**	(0.3158)**	(0.3153)**	(0.1209)**	(0.2270)**	(0.2343)**
Observations	2241	2241	2241	2301	2301	2301
R-squared	0.06	0.08	0.08	0.07	0.10	0.10

Significance: * significant at 5 per cent level ** significant at 1 per cent level.

Note on model specifications: (1) no controls (2) controls are highest qualification (4 categories – degree, A-level/equiv.,O-level/equiv.,below/none); NSSEC class (6 categories); partner (4 categories – no partner, partner not employed, partner employed in lower occupation, partner employed in higher occupation); age of youngest child (4 categories – no child,0-4,5-11,12-16) (3) controls as model (2) plus dummies for long-term (6 months) unemployment in last 5 years; short-term unemployment in last 5 years; long-term (persistent) illness. See Appendix Table for full results for Model (2).

Table 4 OLS estimates of age group by year interaction effects on facet dissatisfactions in pooled EIB 1992 and WIB 2000 data

Model	(1)	(2)	(3)	(1)	(2)	(3)
	female sub-population			male sub-population		
	coefficient estimates (robust standard errors below)					
Dissatisfaction with work effort demands (hours & amount of work)						
over 44 & wib	0.5403	0.5255	0.5372	0.4866	0.4500	0.4473
	(0.1997)**	(0.1990)**	(0.1968)**	(0.2541)+	(0.2523)+	(0.2528)+
N[a]	2239	2239	2239	2291	2291	2291
Dissatisfaction with reward (pay & fringe benefits)						
over 44 & wib	0.1736	0.1868	0.1784	0.1778	0.1853	0.2006
	(0.2413)	(0.2383)	(0.2374)	(0.3036)	(0.2800)	(0.2809)
N[a]	2166	2166	2166	2268	2268	2268
Dissatisfaction with job security						
over 44 & wib	0.1840	0.1882	0.1928	0.1671	0.1391	0.1474
	(0.1290)	(0.1291)	(0.1289)	(0.1699)	(0.1629)	(0.1636)
N[a]	2238	2238	2238	2295	2295	2295
Dissatisfaction with the work itself						
over 44 & wib	0.2035	0.2054	0.2254	0.0711	0.0642	0.0628
	(0.1042)+	(0.1033)*	(0.1011)*	(0.1223)	(0.1208)	(0.1205)
N[a]	2239	2239	2239	2292	2292	2292

a : Ns are constrained to exclude cases missing in the analysis of OC.
Significance: + significant at 10 per cent level * significant at 5 per cent level
** significant at 1 per cent level.
For model specifications (1)-(3), see note to Table 3.

Table 5 Probit estimates of age group by year interaction effects on non-financial employment attachment (EA), in pooled EIB 1992 and WIB 2000 data

Model	(1)	(2)	(3)	(1)	(2)	(3)
	female sub-population			male sub-population		
	estimated marginal effects[b] (standard errors below)					
over 44 & wib	0.1202	0.1268	0.1279	-0.0493	-0.0559	-0.0538
	(0.0424)**	(0.0430)**	(0.0432)**	(0.0516)	(0.0532)	(o.0532)
N[a]	2241	2241	2241	2301	2301	2301

a: Ns are constrained to exclude cases missing in the analysis of OC.
b: evaluated at the means.
Significance: ** significant at 1 per cent level.
For model specifications (1)-(3), see note to Table 3.

Table 6 Comparison of age group by year interaction effects for different definitions of age group

(a) OLS estimates of coefficients (robust standard errors) for interaction effects on OC

	(1)	(2)	(3)	(1)	(2)	(3)
	female sub-population			male sub-population		
over 44 & wib	-0.6713	-0.6851	-0.7029	-0.9258	-0.8755	-0.8828
	(0.2720)*	(0.2729)*	(0.2717)*	(0.3029)**	(0.2894)**	(0.2871)**
over 49 & wib	-0.8699	-0.8727	-0.9132	-1.2811	-1.2262	-1.2451
	(0.3302)**	(0.3330)**	(0.3332)**	(0.3967)**	(0.3878)**	(0.3859)**

(b) OLS estimates of coefficients (robust standard errors) for interaction effects on dissatisfaction with work demands

	(1)	(2)	(3)	(1)	(2)	(3)
	female sub-population			male sub-population		
over 44 & wib	0.5403	0.5255	0.5372	0.4866	0.4500	0.4473
	(0.1997)**	(0.1990)**	(0.1968)**	(0.2541)+	(0.2523)+	(0.2528)+
over 49 & wib	0.6424	0.6618	0.6900	0.6188	0.6011	0.6019
	(0.2403)**	(0.2373)**	(0.2376)**	(0.2757)*	(0.2749)*	(0.2749)*

Ns are as shown in Tables 3 and 4.
Significance: + significant at 10 per cent level * significant at 5 per cent level
** significant at 1 per cent level.
For model specifications (1)-(3), see note to Table 3.

Table 7 OLS estimates of coefficients (robust standard errors) for interaction effects on other dissatisfaction measures, with older age group defined as 50-60

Model 2 controls	financial reward		job security		work itself	
	female	male	female	male	female	male
over 49 & wib	0.4253	0.3947	0.1632	0.2496	0.2050	0.1238
	(0.3033)	(0.2955)	(0.1555)	(0.1771)	(0.1134)	(0.1396)

Ns are as shown in Table 4.
For model specifications (2), see note to Table 3.

Table 8 WERS 1998 and 2004: OLS estimates of effects (robust standard errors) on OC of age group by time period interaction

	female sub-population	male sub-population
wers 2004	0.2394	0.1984
	(0.0961)*	(0.1125)
over49	0.6245	0.4084
	(0.1130)**	(0.1198)**
wers 2004 & over49	-0.4772	-0.4305
	(0.1842)**	(0.2087)*
N	21508	19950

Significance: * significant at 5 per cent level ** significant at 1 per cent level.
Note: Controls are highest qualification (5 categories: none, below O-level/equiv.,O-level/equiv.,A-level/equiv.,degree), occupation (SOC: 9 categories), partner (dummy), age of youngest child (4 categories: no child,0-4,5-11,12-18).

Appendix Table Analysis of OC using pooled EIB 1992 and WIB 2000 data: full results for models with controls

Model	(2)	(3)	(2)	(3)
	female sub-population		male sub-population	
	coefficient estimates (robust standard errors)			
over 44	0.7719	0.7368	0.8283	0.8539
	(0.2276)**	(0.2277)**	(0.2465)**	(0.2468)**
wib	-1.0397	-0.9792	-1.0653	-1.0694
	(0.1499)**	(0.1513)**	(0.1541)**	(0.1527)**
over 44 & wib	-0.6851	-0.7029	-0.8755	-0.8828
	(0.2729)*	(0.2717)*	(0.2894)**	(0.2871)**
lower manager/professional	0.2563	0.2773	0.1956	0.1866
	(0.3118)	(0.3107)	(0.2038)	(0.2044)
administrative	0.5610	0.6123	-0.1031	-0.1025
	(0.3248)	(0.3232)	(0.2169)	(0.2170)
supervisory/technician	0.6174	0.6671	-0.6973	-0.6928
	(0.3938)	(0.3920)	(0.2169)**	(0.2192)**
skilled	0.5871	0.6757	-1.1068	-1.1090
	(0.3393)	(0.3363)*	(0.2551)**	(0.2554)**
routine	-0.0976	-0.0136	-1.3297	-1.2917
	(0.3719)	(0.3712)	(0.2958)**	(0.3005)**
A-level/equiv.	0.3224	0.3103	0.2232	0.2344
	(0.2439)	(0.2390)	(0.2134)	(0.2130)
O-level/equiv.	0.0854	0.0700	0.1113	0.1395
	(0.2469)	(0.2431)	(0.2293)	(0.2288)
Below O/equiv. or none	0.2218	0.2041	0.5885	0.6039
	(0.2708)	(0.2657)	(0.2466)*	(0.2472)*
partner, not employed	0.1371	0.1092	0.2590	0.2607
	(0.2693)	(0.2685)	(0.2203)	(0.2198)
partner, lower occupation	0.0933	0.0360	0.0109	0.0144
	(0.1724)	(0.1724)	(0.1907)	(0.1909)
partner, higher occupation	0.4438	0.4144	-0.1509	-0.1592
	(0.2024)*	(0.2003)*	(0.2387)	(0.2384)
youngest child 0-4	-0.2815	-0.2530	0.0976	0.0814
	(0.2105)	(0.2083)	(0.2107)	(0.2103)
youngest child 5-11	-0.0419	-0.0410	-0.1839	-0.1932
	(0.1692)	(0.1697)	(0.2049)	(0.2047)
youngest child 12-16	0.0703	0.0377	0.2212	0.2288
	(0.1952)	(0.1945)	(0.2664)	(0.2655)
unemployed 6+ months in last 5 years		-0.5597		-0.2249
		(0.2243)*		(0.2359)
unemployed <6 months in last 5 years		-0.5747		0.0416
		(0.3244)		(0.2335)
long-term illness or disability		0.0200		-0.4569
		(0.2141)		(0.2134)*
Constant	15.0423	15.0964	15.7904	15.8341
	(0.3158)**	(0.3153)**	(0.2270)**	(0.2343)**
Observations	2241	2241	2301	2301
R-squared	0.08	0.08	0.10	0.10

Significance: + significant at 10 per cent level * significant at 5 per cent level
** significant at 1 per cent level.